

The Sustainability of Economic Growth under Extractive Institutions

An Empirical Case Study on China



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Historical Institutionalism as described by Acemoglu and Robinson offers an institutional interpretation of history, in which they make a connection between a country's institutions and the level of development and welfare. Under inclusive institutions, the chances of economic growth are higher. In other words, if a country's economic institutions foster economic activity, productivity growth and economic prosperity, while its political institutions are centralized and pluralistic, the chances of economic growth are higher (Acemoglu & Robinson, 2012, p.75-81). However, this does not mean that economic growth is not possible under extractive institutions, where power is in the hands of a narrow elite that extracts income from society.

According to Acemoglu and Robinson, growth under extractive institutions is possible, however, it will not be sustainable long-term, because of a lack of creative destruction and incentive for innovation. This can be explained by the elite's perception of creative destruction and innovation as a threat to their own power, since creative destruction can be a transformative and destabilizing process that creates winners and losers in society (Acemoglu and Robinson, 2012, p.86).

Acemoglu and Robinson see China's growth as a process of catching up with the West and copying Western technologies. China, however, has experienced high levels of economic growth since the start of economic reform in 1978, despite its extractive institutions. This raises several questions. How can these high levels of economic growth be explained? Is growth in China still based on a process of catch up? Is it possible for creative destruction to occur in China? Is it true that there is no incentive for innovation?

Xi Jinping has set a goal for China to become an innovation driven economy in order to escape the middle-income trap, to strengthen its position as a world power, to deal with its growing debt and handle issues related to demographic transition, including the effects of the one-child policy and its rapidly aging society (Lewin, 2016). According to Acemoglu and Robinson protection of property rights, investments in technology and investments in education, stimulates incentives for innovation. These factors will therefore be the focus in determining whether there are incentives for innovation in

China. In order to determine the meaning of innovation and to assess China's innovation performance, innovation will be structured over 'the four archetypes of innovation', as established by Mckinsey Global Institute. The four archetypes are science-based innovation, engineering-based innovation, customer-focused innovation and efficiency-driven innovation. China is already globally competitive in certain types of innovation; others are improving rapidly (Mckinsey Global Institute, 2015, p.8). China is performing particularly well on customer-focused innovation and efficiency-driven innovation. Engineering-based innovation and science-based innovation show mixed results. However, China is expected to improve rapidly in these types of innovation. Especially science-based innovation will start reaping the fruits from the large investments in research and education (Mckinsey Global Institute, 2015, p.103).

In order to create a more complete picture of China's innovation performance, data provided by the Global Innovation Index will be used to measure factors often used to determine the level of innovation in a country. Examples are published research, patents applications, venture capital, investments in higher education and investments in research and development (McKinsey Global Institute, 2015, p.16). This data, measured between 2008 and 2017 show that innovation is possible and improvements have been made in creating incentives for innovation. Data shows that China is starting to show increasingly higher scores and that it is the first middle-income country to be a part of the top 25 innovators (GII, 2016, p.26).

I shall argue that China is transitioning from copying technologies to being innovative, thus the case of China contradicts Acemoglu & Robinson's theory. The following sections aim to critically assess Acemoglu and Robinson's claim on growth under extractive institutions through a single case study focused on China. Primary and secondary literature is analysed to obtain a clear picture of Acemoglu and Robinson's theory, China's economic growth, government policies, incentives to innovate and innovation performance in order to find an answer to why China's economic growth can be sustainable long-term.

1. The Role of Institutions in Economic Growth

1.1 The Connection between Institutions and Growth

In “Why Nations Fail: The Origins of Power, Prosperity and Poverty”, Acemoglu and Robinson take their readers on a trip through history in order to answer the question of why some countries have developed and why other countries were not as successful. Their theory, a strand of historical institutionalism, is largely based on a historical interpretation of history. To explain why economic growth in China poses a challenge to Acemoglu and Robinsons’ theory, it is vital to have a clear understanding of their claims. The theory consists of two levels. The first level makes a distinction between inclusive and extractive institutions. Describing the connection between inclusive political institutions, inclusive economic institutions and prosperity. A country with inclusive economic institutions will have greater chances of generating economic growth, because inclusive economic institutions aim to protect property rights, create a level-playing field, invest in new technologies and encourage the development of skills and knowledge. Inclusive political institutions are crucial in supporting inclusive economic institutions. Inclusive political institutions aim to encourage pluralism, political centralization, law and order, and an inclusive market economy (Acemoglu & Robinson, 2012, p.73-83).

Acemoglu and Robinson also describe a connection between extractive political institutions and extractive economic institutions. Extractive economic institutions do not protect and encourage the things inclusive economic institutions do. In most cases, a small group or elite will try to allocate resources in accordance with their own interests. Under extractive political institutions, power is highly concentrated within a small group or elite. This small group or elite generally tends to focus on pursuing their own interest and they often use their power to strengthen and maintain their position (Acemoglu and Robinson, 2012, p.81-83).

The second level of theory is mainly focused the reasons why different institutions emerge in different countries, for which explanations are found in the trajectories the institutions in a country have followed over the course of history. According to Acemoglu and Robinson, institutions do not

have the tendency to change. However, if they do, this can be attributed to small, not necessarily cumulative differences in institutions caused by institutional drift. These small institutional differences are sometimes magnified by a critical juncture. Critical junctures are events causing an imbalance in politics and economics. Most of the larger institutional changes are product of the way in which existing institutions react to critical junctures. The smaller differences, caused by institutional drift, are crucial in determining how institutions react to a critical juncture. These different reactions to events are often what causes differences between countries (Acemoglu & Robinson, 2012, p.105-110).

The role of institutional drift and critical junctures, confirms the importance of history in shaping a countries institutions and thus a countries development and economic growth. Acemoglu and Robinson also describe virtuous and vicious circles. Inclusive institutions lead to a virtuous circle. Inclusive institutions keep themselves in place, because inclusive political institutions are constraints on power and they promote pluralism enforced by rule of law. Combined with inclusive economic institutions, creating a higher degree of income equality and a level playing field, these inclusive institutions provide a climate with limits on what can be achieved through power (Acemoglu & Robinson, 2012, p.308-309).

The interactions between extractive political and economic institutions cause a vicious circle, with the extractive institutions keeping themselves in place. Extractive political institutions create extractive economic institutions, often enriching a small group or elite in society. This elite is not likely to give up its powers and their resources. It is in their self-interest to keep these institutions in place, in order to maintain their powerful position and keep enriching themselves. Acemoglu and Robinson acknowledge that it is possible for economic growth to exist under extractive institutions, however this growth will not be sustainable long-term, because growth can only be sustainable if a country is capable of innovating. For innovation, there needs to be room for creative destruction and there have to be incentives to innovate. Economist Joseph Schumpeter described creative destruction as ‘replacing the old with the new’. It is about new sectors attracting resources away from older sectors, new firms taking business away from more established firms, and new technologies making previously used skills

irrelevant (Deng & Jefferson, 2012 p.3-4). Creative destruction can transform and destabilize a country; it creates winners and losers, both economically and politically. For this reason, creative destruction is often feared and suppressed by the ones in power and why they are opposed to inclusive political and economic institutions (Acemoglu & Robinson, 2012, p.84-87). In absolutist regimes, the elites have power to shape economic institutions to their own interests. They generally do not want to set up economic institutions necessary for economic growth, because this is linked to how the political institutions are set up. If we assume Acemoglu and Robinson's theory is correct, inclusive political institutions are necessary to support inclusive economic institutions. However, elites in power will not voluntarily change the political institutions and make them more pluralistic, since this would limit their own powers and it would make it more difficult for them to promote their own interests. Elites tend to keep extractive institutions in place, thereby creating a vicious circle (Acemoglu & Robinson, 2012, p.86-87).

1.2 Growth under Extractive Institutions

So how can growth under extractive institutions be explained? Central to the explanation offered by Acemoglu and Robinson is the sustainability of growth under extractive institutions. They acknowledge that economic growth under extractive institutions can occur, however this growth will not be sustainable long-term, because of a lack of innovation. Creative destruction is necessary for innovation. Creative destruction creates winners and losers, both economically and politically and it can transform and destabilize a country. There is a risk of the ruling elite becoming the losers too and them losing their political power and part of their riches. For this reason, creative destruction is often feared by the ones in power and why they are opposed to inclusive political and economic institutions (Acemoglu & Robinson, 2012, p.84-87). In absolutist regimes, the elites often have power to shape economic institutions to their own interests, which is why elites will not voluntarily change political institutions and make them more pluralistic, since doing so means they have to hand in some of their

own powers, making it more difficult for them to promote their own interests (Acemoglu & Robinson, 2012, p.86-87).

This does not necessarily mean that growth cannot exist under extractive political institutions. Acemoglu and Robinson identify two ways in which economic growth under extractive institutions can emerge. First, under extractive economic institutions growth can be possible when elites are capable of directly allocating resources to high productivity activities under their control. Secondly, growth can emerge under political institutions when these institutions allow inclusive economic institutions to develop. Most countries with extractive political institutions will not try to promote inclusive economic institutions, because they are afraid of the consequences of creative destruction. However, in some cases the elites may feel secure enough in their power, to allow a move towards more inclusive economic institutions (Acemoglu and Robinson, 2012, p.91-95). China is a clear example of a case where Acemoglu and Robinson's theory does not quite work. Which is possibly one of the reasons why they added this part to their theory. China's elites have felt secure enough in their power to gradually open up their economy and move towards more inclusive economic institutions. By claiming sometimes elites feel secure enough to move towards inclusiveness, Acemoglu and Robinson try to find a way to explain why their theory does not always apply.

For the case of China an important factor in this is, political centralization. Without political centralization, the Chinese elites would not have felt secure enough to implement the reforms they did in the 1970's for example. In addition, they would not have been able to allocate resources to the high productivity areas. According to Acemoglu and Robinson, it is unlikely that there will be room for creative destruction in China, since the elites and CCP will see this as a threat to their power. In addition, factors like protection of property rights, investments in new technologies and skills, knowledge and education, are crucial. They claim that these incentives to innovate are not sufficient in China. Leading to China's economic growth not being sustainable long-term (Acemoglu & Robinson, 2012, p.91-95).

1.3 Defining Innovation

Defining innovation is not an easy task. Many different scholars have many different ways of defining and measuring innovation. When exactly is something an innovation? Are small incremental changes innovation, or does something have to be completely new? Another difficulty in defining and measuring innovation is to find and get access to data that makes it possible to compare countries. Joseph Schumpeter made a distinction between five types of innovation: new products, new methods of production, the exploitation of new markets, sources of supply and methods of organizing business (Schumpeter, 1983). Many different approaches have developed since that time. Innovation is often measured by looking at input and output (MGI). Other measures that often used are investment in research and development (R&D), higher education or student power, patents and venture capital (Harris, 2018). The OECD defines innovation as the implementation of a new or significantly improved product, good, service, process, marketing method, organizational method in business practices, workplace organization or external relations (OECD, 2005, p.46). For this research both ‘incremental innovation’ and ‘frontier innovation’ are taken into account, providing a broad view on innovation. Frontier innovation is defined as “The implementation of substantially new products, processes or business models to solve problems for customers and create new value” (McKinsey Global Institute, 2015, p.26). Incremental innovation is based on smaller improvements. Innovation will be divided among 4 archetypes. China’s performance differs over these categories. In some of these categories, China is already globally competitive. Others still need improvement.

The first archetype is customer-focused innovation. Customer-focused innovation is about solving problems customers are experiencing by making changes and improving their products, services and business models. Industries in this category are internet software, services, and appliances. Characteristics of these industries include high marketing intensity, short development cycles and quick production of new concepts. Innovation in this category is relies on understanding the customers, their needs and the issues they experience with their products and services. This is why a large market, with many customers works as an advantage for innovation (McKinsey Global Institute, 2015 p.30).

The second archetype is efficiency-driven innovation. Efficiency-driven innovation seeks to make improvements to produce more in a shorter amount of time, with reduced costs and a higher quality in manufacturing. This type of innovation is particularly important for capital- and labour-intensive industries. Examples are electronic equipment, textile, chemicals and construction machinery. Knowledge of production processes and materials is crucial when trying to reduce time, cost and improve quality (McKinsey Global Institute, 2015, p.30).

The third archetype is engineering-based innovation. Engineering-based innovation mainly focusses on designing and engineering new products. This type of innovation is mainly found in industries related to commercial aviation, auto manufacturing and communications equipment. Knowledge plays an important role in engineering-based innovation. This knowledge usually grows over time through experiences and learning by doing. For engineering-based innovation to be a success, it is important for companies to get their hands on professionally trained talent and protection of intellectual property (McKinsey Global Institute, 2015, p.30).

The fourth and last archetype is science-based innovation. Science-based innovation mostly aims to develop new products and techniques through research. This type of innovation occurs in industries like pharmaceuticals, biotechnology, and semiconductor design and specialty chemicals. For science-based innovation to be successful, it is important that companies and academics collaborate. It is of crucial importance that there is a supportive climate. Protection of intellectual property rights needs most improvement in China. Other factors are high-quality universities, since they do research, train new talent and they provide academic collaborations (McKinsey Global Institute, 2015 p.31).

Data provided by the Global Innovation Index (GII), will be used to support the findings on China's innovation performance over the four archetypes of innovation. GII measures the innovation performance of 128 countries over 81 indicators. This provides a broad view on innovation. The goal of GII is to show the different dimensions of innovation and to provide a tool to help the development of policies promoting innovation. GII measures over



Figure 1. GII-framework (<https://www.globalinnovationindex.org/about-gii#framework>)

two dimensions. The Innovation input sub-index and the innovation output sub-index. Both of these categories are built on a set of key pillars. The innovation input sub-index focusses on institutions, human capital and research, infrastructure, market sophistication and business sophistication. The pillars of the innovation output sub-index are knowledge and technology outputs and creative outputs. Furthermore, each of these pillars consist of a set of indicators. The individual indicators generate a weighted average, resulting in the scores of the sub-pillars. The overall GII score is formed by calculating the simple average of the innovation input sub-index and the innovation output sub-index (GII, 2016, p.409).

2. The Case of China

2.1 Political Institutions

How can Acemoglu and Robinsons' theory be applied to China? The country that has experienced unprecedented economic growth and has transformed itself into the second-largest economy worldwide, even though its political institutions are highly extractive. China is a one-party state with absolute power in the hands of the Chinese Communist Party (CCP), where it is not possible to organize fair and independent elections; because the Chinese Communist Party also controls the country's other parties. There is no question that China's political institutions are extractive. There is no room for pluralism and the government consists of narrow elite with few constraints on their power (Acemoglu and Robinson, 2012, p.81-83). Xi Jinping has established several reforms, making himself increasingly powerful. For example, he managed to eliminate the two-term limit previously imposed on presidents and he held a massive anti-corruption campaign.

In the 1990's China adopted a new rule imposing a two-term limit on its presidents. Up until recently, this meant that Xi Jinping would be obligated to step down in 2023. However, by abolishing this two-term limit earlier this year, it is now possible for him to remain president after 2023. Xi Jinping also managed to get approval to include his political philosophy, named 'The Xi Jinping thought on socialism with Chinese characteristics for the new era', in the Chinese constitution. Meaning that all children and students will now be raised studying the 'Xi Jinping thought' at school and all employees at state factories and companies will have to live by his philosophy as well (BBC News, 2018).

Ever since the launch of Xi Jinping's large-scale anti-corruption campaign after the 18th National Congress of the Communist Party of China in 2012, over 182.000 party officials have been placed under investigation, leading to 32 high-ranking party leaders getting arrested. The anti-corruption campaign has made Xi Jinping more popular in Chinese society. It gave him more political capital, which will give him more power to introduce even greater reforms (McElveen, 2014).

2.2 Creative Destruction in China

Between 960 and 1279, when the Song Dynasty was in place, China was ahead of Europa at the time and produced many innovations, like clocks, the compass, gunpowder, paper, paper money, porcelain, blast furnaces, spinning wheels and waterpower. The result was relatively high living standards, compared to in Europe. The growth during the Song Dynasty was still growth under extractive institutions. At the time, there were few constraints on power, and hardly any form of pluralism. Few of the inventions made in China were brought about by market incentives and they were not commercialized. China's emperors mostly valued political stability and they saw change and creative destruction as a threat to political stability and thus also to their power (Acemoglu & Robinson, 2012, p.231- 232). This is illustrated by the history of Chinese international trade. China used to be a naval power involved in long-distance trade a long time before European countries were sailing the world. But because of the Ming emperors' feared that long-distance trade would bring creative destruction and threaten their power, they decided to turn more inward and stop overseas trade (Acemoglu & Robinson, 2012, p.117-118). Private merchants were able to trade within China, but the state that controlled foreign trade. Emperor Hongwu was the first person to rule under the Ming Dynasty. He would only allow international trade if it was under strict control of the state and it did not concern commercial activity. He forbade private merchants to trade with foreigners and Chinese were not allowed to sail overseas. This all stemmed from the previously discussed fear of creative destruction. Hongwu was afraid that foreign trade would create a political and economic imbalance (Acemoglu & Robinson, 2012, p.332).

These are examples of events that heavily influenced economic development in China. The rest of the world was developing at a rapid pace and institutions were transforming, while China turned inward. In 1644, the Qing dynasty was created, followed by a time of political instability. For a long time, shipping was forbidden, which stopped Chinese overseas trade from emerging. Again, this was

based on a focus on political stability and a fear of creative destruction. This resulted in a stagnation of the Chinese economy in the 19th and early 20th century (Acemoglu & Robinson, 2012, p.232-234).

In 1977, when Mao Zedong died, Hu Guofeng became the new chairman of the Chinese Communist Party (CCP). Hardly any plans for economic reform had taken shape. Deng Xiaoping however, recognized that reform was necessary for China to develop. There were some major market reforms in the agricultural sector and reforms in the industrial sector (Acemoglu and Robinson, 2012, p. 235).

Today China is growing rapidly, but according to Acemoglu and Robinson, this type of growth under extractive institutions will not be sustainable, since there are a few signs of China developing more inclusive political institutions (Acemoglu & Robinson, 2012, p.91-95). However, when you look at the facts, China is innovating. It is even the first middle-income country to enter the top 25 innovative countries in the world. China has caught up to the West and has started shifting their focus towards being more innovative.

2.3 China's Incentives to Innovate

China has transformed itself from being a low-income country, to being an upper-middle-income country. China has been changing at a rapid pace, and it still is. However, there hasn't been a clear critical juncture kickstarting this major change in China's institutions, which casts doubt on Acemoglu and Robinson's claim that institutions don't tend to change, unless a critical occurs, forcing a reaction out of a country's institutions.

The first reason why it is important to ensure sustainable economic growth is Xi Jinping's ambitious goal to become the world leader by 2050. Part of this plan is to make China a leader in climate change cooperation. Being at the front line of research and developing new technologies and energy sources is important to reach that goal (Philips, 2017).

Another challenge facing Chinese society is the looming demographic transition. Since the economic reforms, China has known tremendous economic growth and it has transformed itself to a

middle-income country with the second largest economy in the world. Because of several baby booms in combination with the notorious one-child policy, China's population is aging rapidly, meaning the labour force will soon start to shrink (McKinsey Global Institute, 2015, p.17). More people will leave the workforce than people enter into the workforce. Many economists believe this will slow down growth (French, 2016).

The first baby boom in China, took place after the Sino-Japanese war and the Chinese Civil War in the 1930's and 1940's. The establishment of the People's Republic of China was the start of a more peaceful time, which led to a baby boom (Pettis, 2013). Another important moment, with a large increase in births, was the time after the Great Leap Forward. The Great Leap Forward (1958-1962), was a campaign by Mao Zedong, by which he wanted to stimulate growth by ensuring rapid industrialisation an increase of production in order to 'catch up' to the West, as well as turning China in a collectivised country where socialism would be a leading factor in production, work and life. However, it did not lead to the growth Mao wanted to achieve. It turned into an economic stagnation, major food shortages and famine. After this time, there was a large increase of

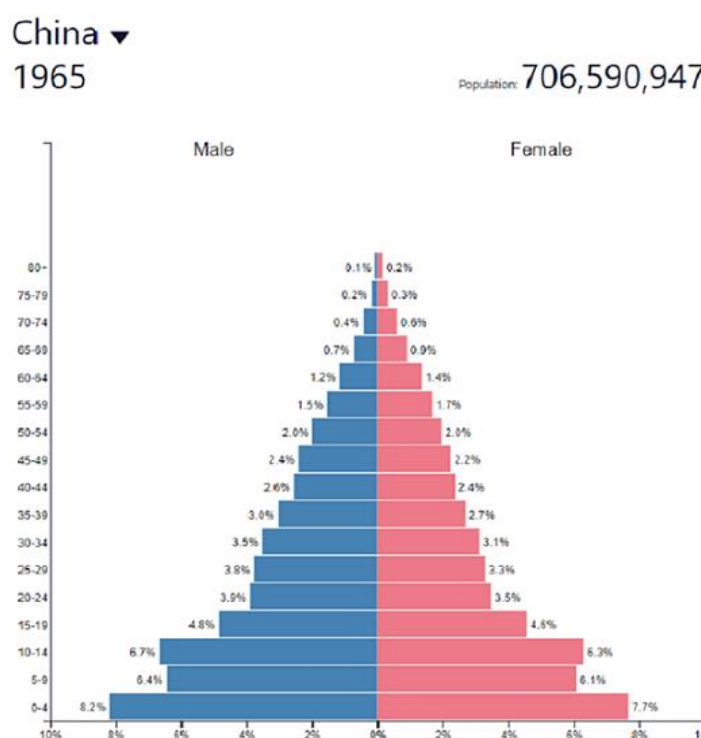


Figure 2. Population Pyramid China, 1965
(<https://www.populationpyramid.net/china/1965/>)

the birth rate in China. These baby boomers were in most part born between 1962-1964. This is illustrated in figure 2. In this figure, a relatively large part of the population is under the age of ten years old. This can be attributed to the increase of births around 1949 as well as the increase in births after the great leap forward.

Around 1986 there was a large increase in births as well, mainly because the previous baby boomers were starting to have children (Heise, 1998). In China, there were so many children that only 52-54% of the population was of working age (Pettis, 2013). This is one of the reasons Beijing decided

to implement the controversial one-child policy, at the end of the 1970's. This policy aimed at restricting the amount of children couples could have in order to decrease the amount of childbirths. Because of this policy, there was a significant decline in birth rate in China. This had a big influence of the population distribution in China. The children that were born in the 1950's and 1960's grew up and because of that; the working population grew bigger than ever. This effect only was enforced by the fact that due to poor healthcare, the life expectancy in China grew relatively slowly.

China ▼
2018

Population: 1,393,686,493

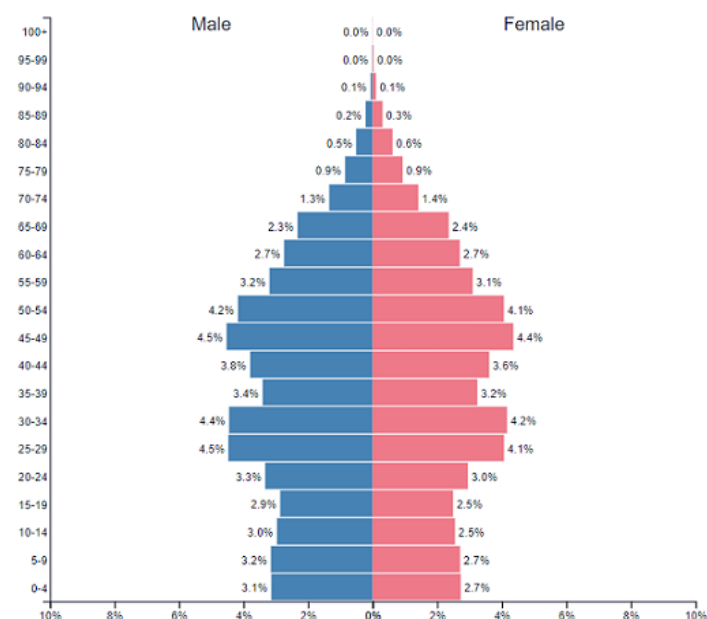


Figure 3. Population Pyramid China, 2018
(<https://www.populationpyramid.net/china/2018/>)

Nowadays roughly, 72 percent of the Chinese population is of working age, which is a much larger portion of the population than in many other countries. The fact that such a large portion of the Chinese population is of working age has had a positive effect on the Chinese economy, because there

China ▼
2060

Population: 1,276,757,046

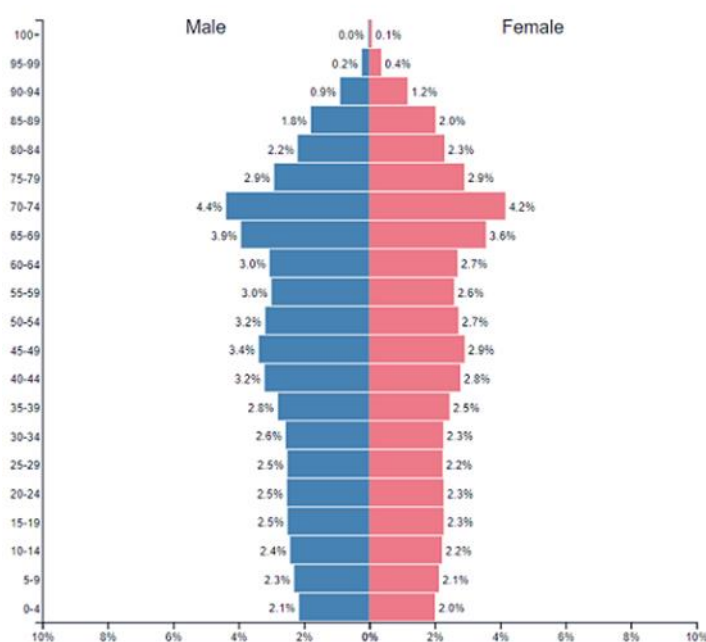


Figure 4. Population Pyramid China, 2060
(<https://www.populationpyramid.net/china/2060/>)

is such a large group that is working and producing income. Therefore, over the years there has been a significant growth in productivity, which resulted in rapid economic growth (Pettis, 2013).

However, this positive effect will most likely be short lived. In the upcoming decade many of the baby boomers, born in the 1950's and 1960's, will retire. Because of the one-child policy however, there is relatively few people entering into the labour

force in the same time. Therefore, the positive effects of the baby booms will soon be reversed. It is predicted that the working population will decrease rapidly, leading to a much lower productivity. The portion of the Chinese population of working age will fall to around 56-58 percent. As a result, China will have one of the oldest populations in the world, with a relatively small group of people working. This may cause a shift from years of economic growth, to a period of economic decline (Pettis, 2013). The fact that China will see a heavy decline in their workforce, one of their main sources of economic growth, is definitely a motivation for the Chinese government to search for other ways of maintaining their growth. To deal with these projected issues, China has gradually loosened the one-child policy and officially abandoned it in 2015. Abandoning the one-child policy aims to increase future labour supply and relieve some of the pressures caused by the aging population. The Chinese government has also been supporting a different attitude towards the older generation. Instead of viewing them as a burden, the government aims to keep the aging population active and working (Cypris, 2018). In addition, plans have been made to raise the retirement age in the near future (China Power Project, 2018).

Another danger to the sustainability of economic growth has been the rising debt. China has funded major investments in infrastructure; these investments fuelled demand and created many jobs. However, over the past few years the returns of fixed asset investments are starting to decline. Resulting in growing debts. For a long time, these returns attributed to GDP growth. Because China cannot count on these returns anymore, it needs to find a way to compensate. One of these ways to compensate is to fuel innovation. (McKinsey Global Institute, 2015, p.17).

All of this together shows that China has some important decisions to make on how to handle these challenges. The government has become increasingly aware of the fact that in order to maintain this level of economic growth and avoid an economic collapse, China will have to make some changes in its institutions. The Chinese government has announced plans to restructure their economy towards a more service and consumption oriented economy and loosen its focus on polluting energy sources and resource intensive export oriented industries and infrastructure. Furthermore, there will be a more

important role for the market in resource allocation, deepening free trade arrangements with other countries and a reduced role for state sector enterprises and a larger role for the private sector and a stronger emphasis on fair competition and defeating corruption (Beale, 2015, p.5-7). These reforms will show a shift towards becoming an innovative country and the aim of becoming a world leader in science and technology. Innovation has been important for China for a long time. First, it adopted and then adapted existing technologies and knowledge and learned from this and as a result, it industrialized further and faster than any other country in the history. China has shown willingness to take the next step and become an innovation leader. China has created a model for innovation that makes use of the advantage of the size of the Chinese markets. This helped China obtain a very strong position in industries related to internet services and appliances (McKinsey Global Institute, 2015, p.17-19).

2.4 China's Economic Institutions

Some attributes of inclusive economic institutions are already applicable to China, others are gradually moving towards a higher degree of inclusiveness. One of the most important traits of inclusive political institutions is the protection of property rights (Acemoglu & Robinson, 2012, pp.73-79). China still has a long way to go when it comes to property rights protection, even though in the past few years, improvements have been made and policies have been implemented with more to follow in the near future. After China became a member of the World Trade Organization (WTO) in 2001, China had to make several changes to their laws and regulations in order to meet agreements made under 'the Agreement on Trade Related Aspects of Intellectual Property Rights (TRIPS)' and other international agreements. China's adjustment to these agreements has caused improvements. China does still face some challenges related to property rights protection, mainly the effective enforcement of property rights laws and regulations (export.gov, 2018).

The Chinese government increasingly realizes the importance of property rights for China's economy. Li Keqiang, currently premier of the State Council, made a statement emphasizing the

importance of enhancing the protection of intellectual property rights. According to him, enhancing the protection of intellectual property rights is strategically important and it is crucial for the development of the socialist market economy. Li Keqiang recognizes that weaknesses in property rights protection is one of the main reasons for the decline in private investments (Reuters, 2017).

Li Keqiang also released his Government Work Report in 2017, in which he defines what protection of property rights means. Important issues to be dealt with are, labor protection, stimulating invention and innovation, and the development and protection of productive forces. He also emphasizes that he aims to improve the property rights protection system and that all forms of ownership and the property rights of citizens need to be protected, in accordance with the Property Rights Law (2007). He has also promised to make changes to laws and regulations that contradict the Property Rights Law (2007) and the guidelines on improving property rights protection. At the 19th National Congress of the Communist party of China, Xi Jinping has also recognized the importance of protecting property rights for the Chinese economy. He stated that the property rights system needs improvement and that the allocation of factors of production happens through a market mechanism. By doing so, Xi Jinping aims to create incentives for innovation through the improvement of property rights protection. Xi Jinping also recognizes that China should ensure the free flow of production factors and fair competition. (Wei, 2018). Last November, The Central Committee of the Communist Party of China and the State Council, presented a new set of general guidelines to strengthen property rights protection. The guidelines consist of 10 priorities for property rights protection, including improvement of legal enforcement of property rights and increasing protection of intellectual property rights (Hsu, 2018). By focusing on these priorities, the Chinese government aims to raise people's sense of wealth security, increase social trust, to stimulate positive expectations and to create a drive for innovation for all economic entities (Reuters, 2018).

Another factor that helps determine whether or not economic institutions are inclusive, are investments in new technologies and the development of skills and knowledge. In all these areas, China has done well the past few years. Many investments have been made towards developing new

technologies. In addition, China is one of the countries that invests the most money into research and development and education. Moreover, it produces more and more PhDs every year (Lihua, 2014, pp.70-78).

3. China's Innovation Performance

Ever since the Global Innovation Index started to be published, China has managed to climb up in the ranking and transforming itself into the first middle-income country ever to enter the top 25 of global innovators. This does not mean it was a smooth and steady transition, with moving up and down in the ranking, before starting to improve rapidly. This following section will assess China's performance over MGI's four archetypes of innovation, supported by GII-data, to illustrate that China is already globally competitive in certain areas and that other areas show a more mixed image.

The first archetype is customer-focused innovation. This is one of the archetypes that China performs very well on. Improvements in welfare and living conditions cause Chinese households to consume more and more. Many Chinese companies have managed to use the massive amount consumers to their advantage by finding ways to understand the needs of this rapidly changing society and rapidly adapt and improve their products to meet these needs (McKinsey Global Institute, 2015, p.6). This kind of innovation first started to take off in the manufacturing of appliances and household goods. These innovations were not aiming to develop completely novel products or techniques. It was all about small innovations and making sure the products were 'good enough'. They aimed to sell as much as possible, for a fraction of the price of the competition. Now, Chinese companies have changed towards a mentality of producing 'cheaper and better' (McKinsey Global Institute, 2015, p.6). The 2011 Global Innovation Index Report has predicted this kind of approach towards innovation, stating that China will focus on delivering high-quality products at affordable prices, while considering sustainability and the environment (GII, 2011, p.52). A major factor in this process is the way in which Chinese companies, Xiaomi for example, have managed to find a way to include consumers in the innovation process. Xiaomi uses a lot of the feedback from their so called 'fans' who can use their vote on an online platform, to let them know what they think of the products and what new features

they would like to see in the future. The same goes for several internet services. Companies like Alibaba, Tencent and Baidu have managed to become global leaders by including the Chinese consumers in determining their needs (McKinsey Global Institute, 2015, p.6). One of China's major advantages in this area is the sheer size of its domestic market, ranking first in domestic market scale (GII, 2017).

The second archetype is efficiency-driven innovation. China has been able to turn being the 'factory of the world' into an advantage. It gave China the opportunity to become a leader in efficiency-driven innovation. Manufacturing companies have learned a lot about knowledge-intensive manufacturing. China especially seems to be performing well in the areas of electrical equipment and construction equipment, respectively holding 16 percent of global revenue and 19 percent of global revenue. One of the major advantages China has managed to make use of is the size of China's manufacturing ecosystem. Supply chain advantages, in combination with the size of the manufacturing ecosystem, lead to cost advantages. Another important development has been open manufacturing platforms, also made possible by the large scale of the Chinese manufacturing ecosystem. Design firms are capable of turning ideas into prototypes faster and cheaper than in other countries. However, in order to maintain this leading position, it is crucial for China to keep innovating. Wages are rising and there is a shift towards a new model of manufacturing worldwide, to a model that digitally links processes of manufacturing and logistics. China has made efforts to maintain its leading position. An example is 'Made in China 2025' (McKinsey Global Institute, 2015, p.61-68)

China's performance in engineering-based innovation shows a mixed picture. On one hand, China has seen some tremendous success in high-speed rail. In 2015, holding 41% of the global market in 2015. China has also been successful in wind power, where it held 20% of the global market and in communication equipment, holding 18% (McKinsey Global Institute, 2015, p.4). China also has ambitious plans like 'the Belt and Road initiative'. Aiming to promote economic integration and development between the Asian, European and African countries along what used to be the Silk Road. Its goal is to establish a set of highways, economic corridors, rail networks and sea routes in order to

improve infrastructure and to promote trade and cooperation (GII, 2016, p.41). Knowledge and experience are critical for this type of innovation, especially when it concerns developing economies that want to catch up with the rest of the world. In China's case, they are gaining knowledge relatively slow in the area of automotive manufacturing. The high level of demand and high profits from joint ventures result in lower motivation to innovate for state-owned enterprises. The industries in which China has been most successful concerning engineering-based innovation have often received government support. For improvement in the wind-power sector, the government launched the 'Wind Power Concession Project' in 2003, leading to a spike in investments in innovation and knowledge. For the improvement of high-speed rail the Chinese Government launched a massive programme, investing almost \$470 billion dollars, into developing new techniques for the development of high-speed trains. China is also becoming increasingly successful in producing communication equipment. Companies like Huawei soon realized that their foreign partners were not going to be open to sharing their knowledge and newest technologies. This led them to start a process of trial-and-error. Through this process, they managed to come up with their own innovations and designs. The expectation is that China will continue to improve in engineering-based innovation and to improve their performance in new forms of engineering-based innovation. Like discussed before, the most successful industries have received government support. The Chinese government has already decided to support several new industries. Examples of these industries are nuclear power, medical equipment and electric vehicles. There has already been progress in some of these industries. Nuclear power has progressed the most, since the government set the goal to get 30 percent of energy from renewable sources by 2030. The industry of medical equipment is also starting to show progress. This can be attributed to growing expenses on R&D, caused by government subsidies Chinese hospitals can get if they buy equipment that has been produced in China (McKinsey Global Institute, 2015, p.10-11).

Improving science-based innovation has become one of the top priorities for the Chinese government. After the 16th national congress of the Chinese Communist Party (CCP) in 2006, 'The Long-term Planning Outline of Scientific and Technological Development (2006-2020)' was

presented. This outline determined that China would focus on independent innovation as the basis of technological development. The goal is for China to become an innovative country by 2020. The Chinese Communist Party sees innovation as the most important strategy for development in the next century and aims to become a frontrunner in science and technology. To reach this goal the Chinese government has stressed the important role of Chinese companies. Chinese companies should combine production, research and education in a market oriented climate (Lihua, p.59-60). China seems to be increasingly successful in reaching these goals. Ranking first in firms offering formal training, first in knowledge workers, ranking fourth in QS university ranking, fourteenth in citable documents, second in trade, competition and market scale (GII, 2017). China has shown major improvements when it comes to scientific and technological publications, with strong suits like material science, analytical chemistry, rice genomics and stem-cell biology. China also has also shown high scores concerning investments in Research and Development (R&D), mainly investing in high-tech industries like energy, satellites, spacecraft, electrical cars, supercomputers, life sciences and genetics, as well as high-speed trains and defense and security technologies (Ernst, 2011, p.7). China is also leading when it comes to patent applications, mainly because of major companies like Huawei, WeChat, Baidu and Tencent. These companies have led China to become a major market for capital investments. Huawei, China's leading company for the development of telecommunication equipment, ranks second for patent applications with the World Intellectual Property Office (WIPO) (Ernst, 2011, p.7). This also shows in data provided by the Global Innovation Index. In 2017, there was a worldwide growth in patent applications of 7.8% that can be mainly attributed to China. (GII, 2017).

There has been progress in science-based innovation, however the steps taken have not yet led to China becoming a frontrunner in innovation. There are several reasons for this. First, regulatory issues limiting innovative products from entering the market. Second, insufficient protection of intellectual property rights. Third, a lack of efficiency in allocating public research funds. Although these are areas where the Chinese government is putting in efforts to improve. Another factor that comes into play is time. Science-based innovations generally have long development cycles. This is

why it often takes long before results of investments start to show (McKinsey Global Institute, 2015, p.93). However, recent developments show a positive outlook for the future. China has invested a lot in education and raising the quality of scientists and researchers and it managed to attract Chinese scientists from overseas. China has the second largest amount of universities and it is home to a growing amount of graduates in science, technology, engineering and mathematics. The talents and the knowledge these people provide form an important source for stimulating innovation (Fu, 2015, p.365-366). In a knowledge-based economy, it is crucial for there to be a certain amount of competition, because competition has a stimulating effect. Competition in a knowledge-based economy is mainly about competition between talents. For this reason, it is important to keep developing these talents. According to Lihua, this will lead to improvement of science and technology (Lihua, 2014 p.65). China has been publishing a growing amount of scientific papers and the number of patent requests is spiking. China does have potential to become globally competitive in science-based innovation if it successfully makes use of scale advantages, such as the large amount of graduates, the large Chinese market, low-cost testing and manufacturing capacity (McKinsey Global Institute, 2015, p.98).

4. Implications for Acemoglu and Robinson's Theory

According to Acemoglu and Robinson China's economic growth will not be sustainable because of its extractive institutions, causing a lack of creative destruction and incentives to innovate (Acemoglu and Robinson, 2012, p. 86). However, as the data presented in the previous sections shows innovation and creative destruction are possible in China. China is currently even one of the global frontrunners in certain types of innovation, with data showing it has quickly become globally competitive in efficiency-based innovation and customer-focused innovation (McKinsey Global Institute, 2015, p.8). In the areas where China is not yet globally competitive, it does show promising prospects for the future. Science-based innovation is expected to improve in the near future; because it is expected China will soon start reaping the benefits of its major investments in research and

education. The benefits from improved education and research will also positively influence engineering-based innovation. Combined with government support for industries like high-speed trains, wind power, medical equipment and electric vehicles and major government programs like ‘The belt and road initiative’, China is also making strides towards being competitive in engineering-based innovation.

As for China’s institutions, there is no doubt about Acemoglu and Robinson’s assessment about the extractive nature of China’s political institutions is correct. However, there have been several changes to China’s institutions that have not been brought about by critical junctures. China has been working on anti-corruption campaigns, improving property rights and allowing more market force to allocate resources, meaning its institutions are definitely changing, without the occurrence of a critical juncture. Acemoglu and Robinson’s claims on the necessity of critical junctures for major institutional change also does not quite work in China’s case.

According to Acemoglu and Robinson, there is no incentive to innovate in China. Incentives for innovation are stimulated by protection of property right and investments in technology and education. Chinese policies related to these factors have improved a lot in recent years. Moreover, if you look at incentives to innovate from a different angle it becomes clear, that even though China’s political institutions are extractive, China’s elite feels secure enough in their power to allow increasingly open economic institutions and creative destruction (Acemoglu and Robinson, 2012, p.91-95). This feeling of security is perhaps strengthened by the fact that Xi Jinping has managed to eliminate the two-term presidential limit, causing him not to feel threatened by the prospects of creative destruction and innovation. In addition, for the powerful elites it is in their own interest to allow creative destruction and innovation. Because China is likely to face economic downfall, if it does not find a way to make up for the decreasing labor force and the growing national debt. Also, innovation will be necessary if China wants to reach its goal of becoming the major world leader by 2050.

5. Conclusion

In conclusion, the previous sections have illustrated that certain aspects of Acemoglu and Robinson's theory do not stroke with the reality of what is currently happening in China. Acemoglu and Robinson claim that economic growth cannot be sustainable under extractive institutions, because of a lack of creative destruction and innovation. However, the case of China shows that it is possible for innovation and creative destruction to occur under extractive institutions. China is the first middle-income country to enter the top-25 of most innovative countries in the world and it is already a global leader in customer-focused and efficiency-driven innovation and improving rapidly in science-based innovation and engineering-based innovation.

Many of these improvements can be attributed to a high level of government support for innovation. China has made the development of an innovation driven economy one of its primary goals, in the hopes of escaping the middle-income trap and to keep their growth sustainable long-term. Acemoglu and Robinson name protection of property rights and investments in education and technology crucial factors in creating incentives for innovation. As the presented data has shown, China has made major improvements on all three factors. Additionally, China's government is well aware of the fact that in order to prevent economic downfall due to demographic changes and rising debts and to reach its goal of becoming a world leader by 2050, it is important to allow creative destruction and innovation. Therefore, it is not correct to state that it is not possible to be innovative under extractive institutions.

Furthermore, Acemoglu and Robinson sketch a very static image of institutions. Institutions hardly ever change and keep themselves in place, unless a major destabilizing event occurs and causes a critical juncture. China's institutions have changed a lot and its economic institutions are becoming increasingly inclusive, in order maintain economic growth and stimulate innovation. However, this happened without the occurrence of a critical juncture. So maybe it is possible for institutions to change gradually over time.

In conclusion, although Acemoglu and Robinson's theory does seem plausible for many cases, China proves to be a difficult case for them. This is why their theory regarding China needs to be reassessed. Acemoglu and Robinson's response to critics often includes something along the lines of; just wait for 15 years and our theory will prove to be correct. Even though China has made a great progress recently and has positive future prospects, I agree with Acemoglu and Robinson on this statement. Let's wait fifteen years and see who turns out to be correct. Only time can tell.

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